

emergence must rapidly follow the first wakening to life by the hot rays of the sun.

So I believe that sudden warmth after a period of prolonged cold, and not the cold itself, is the cause of the duskiess of North American vernal forms of Lepidoptera, and I will not hesitate to advance the same reason for the darkness of Arctic species, and of Mr. W. H. Edwards's specimens which he experimentally subjected to cold. I cannot prove anything as yet, but I put forward this theory, which has commended itself to me, in the hope that your readers, who have had much more experience in practical entomology than I, may be able to put it to the test, and either prove its accuracy, or propose some other which may serve better to explain the facts.

I believe there is a phase of melanism caused by moisture, quite distinct in its nature from the duskiess dealt with in the present paper, but I have already dealt with this question elsewhere ("Entomologist," 1887, p. 58,) and need only point out the distinction here. It becomes every day more evident, in dealing with colour-variation, that different colours do not necessarily denote essentially different pigments, and seemingly identical colours may be quite unlike in their composition, though we at present do not know precisely what that is.

CAPTURES MADE WHILE TRAVELLING FROM WINNIPEG TO VICTORIA, B. C.

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It was my privilege last summer to accompany the expedition sent out by the National Academy and the U. S. Navy Department to Japan for the purpose of observing the total eclipse of the sun which took place upon the 19th of August, 1887. The route selected by our party was the one just opened to the far East over the Canadian Pacific R. R., and I was the first passenger booked in Chicago for Yokohama, and my colleague, Prof. Todd, was the first passenger booked in Boston for the same port, over the new line. We left Winnipeg on the morning of June 13th, and were borne westward without any detention until the 15th, when,

owing to the fact that the railroad bridge at Duthil had been partially carried away by a freshet in the Bow River, we were compelled to lie at Canmore Station for about twenty-four hours. The delay was rather acceptable to me, as it enabled me to do a little collecting in a region wholly new to me. We reached Vancouver upon the evening of June 17th, and on the morning of the 19th were courteously permitted by Captain Marshall, and Captain Webber, the Naval Superintendent of the Can. Pac. R. R., to go to Nanaimo, on Vancouver Island, where the "Abyssinia" took on her coals. Upon the morning of the 20th, while the "black diamonds" were being poured into the hold of the great ship, I took refuge from the dust and discomfort which prevailed on board, and with the assistance of a couple of Indian lads, spent two hours in collecting specimens a few hundreds of yards from where the ship was tied up to the shore. My captures consisted exclusively of Coleoptera. I saw a specimen of *Argynnis*, and a fine male of *Papilio Eurymedon*, but neither came within reach of my net, and after giving chase for a moment, I reverted to the more profitable task of gathering the beetles, which appeared to be abundant. The result of my collecting at Canmore and at Nanaimo is given in the accompanying lists. I am indebted to my good friends, Dr. John Hamilton of Allegheny, and Dr. Geo. H. Horn of Philadelphia, for the determination of the Coleoptera.

Species Collected at Canmore, June 15th, 1887.

LEPIDOPTERA.

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| 1. <i>Papilio zolicaon</i> , Boisd., 1 ex. | 9. <i>Chionobas Chryxus</i> , |
| 2. <i>Colias</i> var. <i>occidentalis</i> ♂ 1 " | Dbly.-Hew., 1 ex. |
| 3. <i>Thecla Irus</i> , Godt., 4 " | 10. <i>Nisoniades Icelus</i> , Lint., 3 " |
| 4. <i>Lycaena antiacis</i> , Bdl., 13 " | 11. <i>Heliothis</i> , sp., 2 " |
| 5. " <i>amyntula</i> , Bdl., 7 " | 12. <i>Rheumaptera</i> , sp., 1 " |
| 6. <i>Phyciodes Montana</i> , Behr., 1 " | 13. <i>Eupithecia</i> , sp., 1 " |
| 7. <i>Argynnis Freya</i> , Thnb., 2 " | 14. <i>Nephoptyx</i> , sp., 1 " |
| 8. <i>Erebia Epipsodea</i> , Butl., 1 ex. | |

COLEOPTERA.

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| 1. <i>Pterostichus Luczotii</i> , Dej., 1 ex. | 4. <i>Acmaeops pratensis</i> , Laich., 3 ex. |
| 2. <i>Trichodes ornatus</i> , Say, 2 " | 5. <i>Saperda tridentata</i> , Oliv., 1 " |
| 3. <i>Dichelonycha Backii</i> , | 6. <i>Lepyrus gemellus</i> , Kirby, 1 " |
| Kirby, 39 " | |

At North Bend Station, B. C., after lunch, I succeeded in taking before the train started four specimens of *Cicindela Oregona*, Lec.

My search for Lepidoptera and Coleoptera at Canmore was interfered with by the presence of larger game, and I was so much engrossed by the chase of a lynx that I neglected my entomological opportunities, as I have now occasion to regret, inasmuch as the lynx in the end proved missing.

List of Coleoptera taken at Nanaimo, June 20, 1887.

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| 1. <i>Notiophilus Sibiricus</i> , Mots., | 24. <i>Corymbites fallax</i> , Say, 1 ex. |
| 1 ex. | 25. " <i>inflatus</i> , Say, 1 " |
| 2. <i>Pterostichus lustrans</i> , Lec., 1 " | 26. <i>Chalcophora angulicollis</i> , |
| 3. <i>Amara fallax</i> , Lec., 1 " | Lec., 9 " |
| 4. <i>Harpalus rufimanus</i> , Lec., 1 " | 27. <i>Dicerca tenebrosa</i> , Kirby, 1 " |
| 5. <i>Anisodactylus Californicus</i> , | 28. <i>Buprestis aurulenta (lauta)</i> |
| Dej., 1 " | Lec., 33 " |
| 6. <i>Silpha Lapponica</i> , Hbst., 1 " | 29. <i>Melanophila longipes</i> , Say, |
| 7. <i>Coccinella sanguinea</i> , Linn., 5 " | 10 " |
| 8. <i>Anatis Rathvoni</i> , Lec., 1 " | 30. " <i>Drummondi</i> , |
| 9. <i>Psyllobora taedata</i> , Lec., 3 " | Kirby, 18 " |
| 10. <i>Scymnus Phelpsii</i> , Crotch, 1 " | 31. <i>Chrysophana placida</i> , Lec., |
| 11. <i>Trogosita virescens</i> , Fab., 24 " | 1 " |
| 12. <i>Peltis Pippingskoeldi</i> , | 32. <i>Podabrus piniphilus</i> , |
| Mann., 3 " | Esch., 2 " |
| 13. <i>Adelocera profusa</i> , Cand., 1 " | 33. <i>Telephorus Curtisii</i> , Kirby, 1 " |
| 14. <i>Alaus melanops</i> , Lec., 1 " | 34. " <i>divisus</i> , Lec., 1 " |
| 15. <i>Cardiophorus tenebrosus</i> , | 35. <i>Clerus sphegeus</i> , Fab., 7 " |
| Lec., 1 " | 36. <i>Ptilinus basalis</i> ♂, Lec., 1 " |
| 16. <i>Elatер apicatus</i> , Say, 1 " | 37. <i>Ceruchus striatus</i> , Lec., 2 " |
| 17. " var. <i>phoenicopterus</i> , | 38. <i>Asemum atrum</i> , Esch., 3 " |
| Germ., 1 " | 39. <i>Tetropium velutinum</i> , Lec., 2 " |
| 18. <i>Agriotes Thevenctii</i> , Horn, 1 " | 40. <i>Xylotrechus undulatus</i> , Say, 1 " |
| 19. <i>Dolopius lateralis</i> , Esch., 2 " | 41. <i>Rhagium lineatum</i> , Oliv., 1 " |
| 20. <i>Melanotus fissilis</i> , Say, 1 " | 42. <i>Leptura obliterated</i> , Hald., 1 " |
| 21. <i>Limonius Californicus</i> , | 43. " <i>chrysocoma</i> , Kirby, 1 " |
| Mann., 1 " | 44. " <i>scripta</i> (var. <i>a</i>) |
| 22. <i>Athous vittiger</i> , Lec., 1 " | Lec., 2 " |
| 23. " n. sp. (<i>fide</i> Dr. Horn) 1 " | 45. <i>Syncta albida</i> , Lec., 1 " |

46. <i>Haltica bimarginata</i> , Say, 23 ex.	53. <i>Anaspis atra</i> , Lec., 8 ex.
47. <i>Phellopsis porcata</i> , Lec., 1 "	54. " <i>rufa</i> , Say, 1 "
48. <i>Eleodes cordata</i> , Esch., 7 "	55. <i>Eurygenius campanulatus</i> , Lec., 1 "
49. <i>Iphthimus serratus</i> , Mann., 5 "	
50. <i>Platydemia Oregonense</i> , Lec., 4 "	56. <i>Rhynchites bicolor</i> , Fab., 3 "
51. <i>Helops pernitens</i> , Lec., 1 "	57. <i>Amnesia granicollis</i> , Lec., 1 "
52. <i>Cistela variabilis</i> (var. <i>c</i>) Horn, 1 "	58. <i>Sciopithes obscurus</i> , Horn, 1 "
	59. <i>Dorytomus luridus</i> , Mann, 2 "
	60. <i>Orchestes canus</i> , Horn, 1 "

While lying in the harbor of Victoria for a few hours, during which I did not have the privilege of going ashore to collect, I climbed to the main-top of the steamer, and while sitting at the cross-trees a specimen of *Pachyta liturata*, Kirby, came flying toward me and settled on my arm. It was promptly captured and tied in a corner of my handkerchief, and is now embodied in my collection. Numerous specimens of *Melanophila longipes* also came on board and sought refuge in the seams between the planking of the deck. I caught a dozen or more, and for two days afterwards, when fully six hundred miles off the coast, a stray specimen would now and then turn up upon the spray-swept deck of the vessel.

The success which attended my efforts to collect at Nanaimo reveals the richness of the locality. I was absent from the steamer about two hours, from 7.30 a.m. until a little before 10 a.m. My collecting was all done in a little clearing made by an Indian for the purpose of planting a few rows of beans and potatoes. The area covered did not exceed 75 yards square. The sun was shining brightly, and about the trunks of the freshly fallen fir trees and under their bark the Buprestidæ and Elateridæ were particularly abundant. It was with pleasure that I recognized *Trogosita virescens* in this high northern latitude, as heretofore it has been represented in my collection mainly by specimens from Florida. Most of the specimens have dark blue elytra, but a few have the typical green. I trust at some future day to be able to explore patiently and thoroughly the length and breadth of Vancouver Island and the coast of British Columbia lying to the East and North.